

Female.—Coloration and structure as in the male except in the following features: The median femora are unarmed on the posterior ventral margin except for the genicular spine, though in some specimens this margin will very surely be found armed with from one to three small spinules as in the male; posterior femora armed beneath on both margins in a little more than the apical half with many very minute teeth, more numerous on the outer margin; middle tibiae with two medio-dorsal spines on the right tibia and one on the anterior margin only of the other one; ninth segment of abdomen inconspicuous, almost hidden beneath the eighth. Subgenital plate apically rounded or, in dried specimens, mesially broadly notched; ovipositor noticeably longer than the pronotum, the outer valves smooth and apically curved upwards and very sharply pointed, the inner valves apically very sharply pointed and decurved and with four ventral teeth, sharp and, especially the distal ones, very slender.

Measurements.—Pronotum, ♂, 4.5; ♀, 3.5 mm.; anterior femora, ♂, 5, ♀, 4.25 mm.; posterior femora, ♂, 10, ♀, 8 mm.; posterior tibia, ♂, 10.5, ♀, 9 mm.; ovipositor, 5 mm.; width, posterior femora at widest point, ♂, 3.3, ♀, 2.5 mm.

Holotype ♂, allotype ♀, paratypes A, adult ♂, B, C, D, and E, adult ♀ ♀, and F to K, immature males. All taken at the type locality by B. C. Marshall. All the adult material was taken in October, 1925, except one female, paratype C, which was taken the previous February. The nymphs were taken in February, March and October, 1925. All were sent pinned except paratypes D and E which were in spirits. Paratypes B and C appear as if they also had been preserved for a time in spirits as the colors seem somewhat faded.

Types.—Holotype, allotype and paratypes A, C, E, F, G and K in the National Museum (Cat. No. 28934, U. S. N. M.); the rest of the material returned to the collector.

Type locality.—Imboden, Arkansas.

SOME NEW PORTO RICAN SCALE PARASITES (HYMENOPTERA: ENCYRTIDAE).

By H. L. DOZIER,¹ *Delaware Agricultural Experiment Station.*

The writer while conducting some scale and whitefly parasite studies in Porto Rico, during 1925, reared a large number of very interesting forms, many of which proved to be new to science. Two of the species described in this paper are primary parasites of the Pustule Scale, which is a very destructive pest in the West Indies. This scale occurs in Florida, where it disfigures the oleander. It would be very interesting to determine whether or not these two parasites also occur there. Thanks are due Mr. P. H. Timberlake, who kindly confirmed the

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validity of these species and has helped the writer in many ways in his study of these minute parasites. The new genus is named in honor of Dr. Ricardo G. Mercet, who has recently revised and done so much in this group and who has also confirmed the validity of the genus and species.

MERCETIELLA, new genus.

Female: Closest perhaps to *Metaphycus*, but with the mesonotum and scutellum very strongly reticulated, and having no trace of parapsidal furrows. Scutellum no wider than long and decidedly more acute at apex than in *Aphycus* and with the setae long and bristle-like. Body rather robust and non-metallic, the abdomen rather short, rounded at the apex and with the ovipositor reaching internally nearly to the base; the tactile plates very much retracted and situated rather closer to the base than to the middle thereby differing from true *Aphycus*, which generally have the plates placed beyond the middle, at least in the female. Antennae of female are typical of Mercet's *Euaphycus* group, the funicle composed of six joints and the club three-segmented, but having the scape and pedicel microscopically reticulated. Mandibles tridentate, the three teeth being about equal in length and distinctly more acute than in the *Euaphycus* group. Maxillary palpi three-segmented, the labial palpi two-segmented. Wings *Aphycus*-like in arrangement and density of pubescence and in the shape of the submarginal vein; the marginal vein is distinctly longer than wide and the stigmal vein is comparatively short, wide at the apex and much constricted at its base.

Male: Differing from the female in having antennae with numerous long hairs which are longer and more prominent than in the species of true *Aphycus*. The hairs are about as long and prominent as in *Metaphycus melanostomatus*, but the first funicle joint is not lengthened as in that species. The reticulated scape and pedicel readily associate the male with the female even were biological data lacking.

Genotype.—*Mercetiella reticulata* Dozier.

Mercetiella reticulata, new species.

(Text figs. 1, 2, 3.)

Female. Rather robust. Frontovertex over twice as long as wide, the ocelli placed in an acutely angled triangle. Eyes sparse and very finely hairy. Antennal scape cylindrical, narrow, and only slightly widened in center; pedicel almost as long as the first three funicle joints; first five funicle joints of nearly equal length, each gradually increasing in width until the sixth is almost twice as wide as the first; club elongate oval, slightly wider than the last funicle joint, slightly pointed at apex and as long as the last five funicle joints combined. Wings uniformly ciliated, the oblique hairless streak interrupted below, the cut-off portion separated from the basal hairless streak by two indistinct and faint rows of cilia. Pronotum, metanotum, and propodeum distinctly reticulated and with sparse whitish hairs.

Coloration.—Head including the eyes black, vertex yellowish with its base darker. Thorax black which becomes brownish in balsam-mounted specimens and in these a narrow, pale, median, longitudinal stripe becomes visible. Abdomen testaceous yellow, with a median irregular fuscous patch on dorsum near base; slight infuscation along the posterior margins; in balsam-mounted specimens this dorsal fuscous patch breaks up into a more irregular, less noticeable patch, distinctly reddish in color. Antennae yellowish, scape without markings, pedicel and club brown, the first five funicle joints very slightly darker than the sixth. Legs whitish except the tarsi, which are testaceous yellow, the fore-legs without markings; the middle femora with an interrupted, distally located, indistinct blackish band, the tibiae with two more or less interrupted blackish bands; the hind tibiae with two more or less distinct blackish bands.

Length (exclusive of ovipositor).—.820-.920 mm.

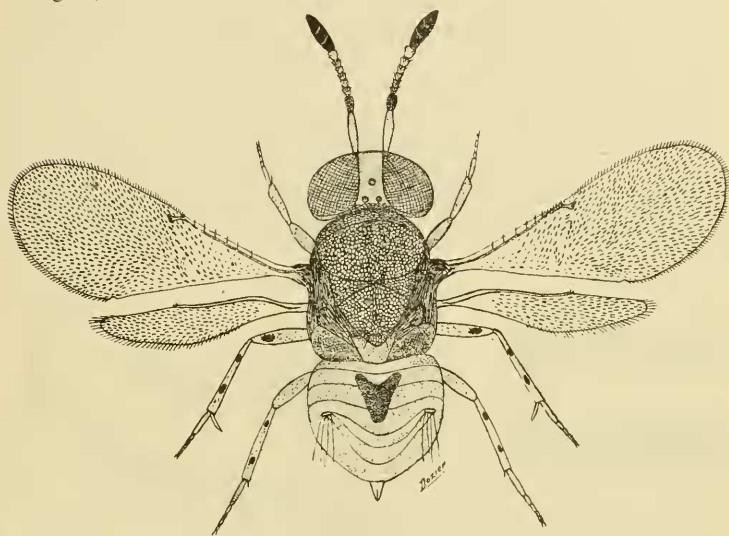


Fig. 1. *Meretiella reticulata*, adult female, greatly enlarged.

Male.—Pubescence of the eyes sparse and very short and fine. Antennae with numerous long, conspicuous hairs; scape and pedicel reticulated; scape very slightly widened in the center where it is about as wide as the pedicel which is decidedly wider than the joints of the funicle; all joints of the funicle increase in length so that the sixth is over twice as long as the first and nearly as wide as the club; the club nearly three times as long as the sixth funicle joint.

Entire body black, becoming brown in balsam mounts. Antennae entirely dusky. Fore and middle legs dusky, lightened up at the distal and proximal ends of femora and tibiae; tibiae of hind legs with two more or less distinct blackish bands.

Length.—.820 mm.

Described from a series of four females and one male reared from the Pustule Scale, *Asterolecanium pustulans*, on Balsa wood tree, Nov. 23, 1924, twelve females and two males reared from same insect on *Cassia fistula* tree during May 16-21, 1925, and a large series of males and females reared from similar material November, 1925; all reared by the writer from material collected at Rio Piedras, Porto Rico.

Holotype male, allotype and one paratype female on same slide, and two females and two males mounted on card points, deposited in the U. S. National Museum (Type Cat. No. 28982); paratypes in collections of the writer, P. H. Timberlake, R. G. Mercet, and the Porto Rican Insular Experiment Station.

Descriptions are made from slide-mounted specimens and fresh living material. This species is a primary parasite of *Asterolecanium pustulans*, and aids in checking this serious pest of the fig, *Cassia fistula*, silver oak (*Grevillea* sp.), oleander, mulberry, and many other trees and shrubs.

According to Mr. P. H. Timberlake, *Asterolecanium pustulans* is a common scale in Hawaii but has no parasites there except *Tomocera californica*. This latter parasite, so far, is not known to occur in Porto Rico and might prove a valuable introduction as it is also an enemy of the Black Scale, *Saissetia oleae*.

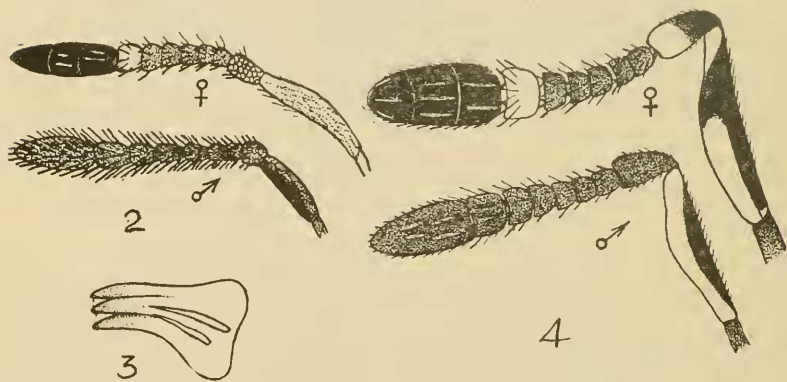


Fig. 2. *Mercetiella reticulata*, female and male antennae greatly enlarged.

Fig. 3. *Mercetiella reticulata*, mandible, greatly enlarged.

Fig. 4. *Euaphycus portoricensis*, female and male antennae, greatly enlarged.

***Euaphycus portoricensis*, new species.**

(Text fig. 4.)

Female.—Frontoververtex over twice as long as wide, the ocelli placed in an equilateral triangle. Antennal scape long, narrow, flattened but not greatly

widened; pedicel about as long as the first three funicle joints combined, the first three funicle joints are of about the same length and width, the others distinctly increasing in width; club distinctly wider than the funicle, elongate oval, obtusely rounded at apex. Maxillary palpi three-segmented, the mandibles tridentate. Wings uniformly ciliated, the oblique hairless streak of the forewing interrupted by several rows of cilia. Ovipositor protruded.

Coloration. Head and body yellow with the mesonotum and scutellum distinctly orange. Eyes with greenish bloom in life. Antennal scape pale with the outer half fuscous; basal half of pedicel blackish, the apical half whitish; first five funicle joints and club brown, the sixth funicle joint whitish. Abdomen yellow with an irregular patch of brown on dorsum. Legs whitish, middle femora with indistinct black band, the tibiae with two black annulations; two more or less distinct bands on hind tibiae and the juncture of the femora with the tibiae, blackish; tarsi yellowish.

Length (exclusive of ovipositor).—960 mm.

Male.—Vertex, pronotum, mesonotum, and scutellum distinctly reticulated, quite similar to *Mercetiella reticulata*, the mesonotal hairs showing rather prominently on account of their dark color, abundant and bristle-like. Under high power of the microscope the hind margins of the abdominal segments are faintly reticulated. Antennae similar in shape to those of the female but the club is distinctly longer and more narrow in proportion.

General color brown with the dorsum of thorax black, the entire insect, however, lightens up when mounted in balsam on slides. Antennae entirely dusky except the scape, which is whitish with the outer margin striped with fuscous part of its length. The middle and hind tibiae with two more or less distinct black bands, and both distinctly black at the junction of the femora and tibiae.

Length.—760 mm.

Described from two females and one male May 14, 1925, and two females and one male Nov. 14–16, 1925, all reared by the writer from *Asterolecanium pustulans* collected at Río Piedras, Porto Rico, on *Cassia fistula* and mounted in balsam on slides. This parasite is also a primary one but much less abundant than is *Mercetiella reticulata*.

Holotype female and allotype male on slides deposited in U. S. National Museum (Cat. No. 29070); paratype female in collection of P. H. Timberlake; others in the collection of the writer.

***Acerophagus nubilipennis*, new species.**

In Timberlake's table to members of this genus this species runs to *A. fasciipennis* Timb. but is quite distinct from that species.

Female.—Frontovertex about one half longer than wide, the ocelli placed in a triangle. Eyes not pubescent. The shorter and more basal tooth of the mandible is on the inner margin instead of the outer as in *A. fasciipennis*. Antennal scape very long and narrow, very slightly widened at middle, a little longer

than the funicle joints combined; the pedicel about as long as the first four funicle joints combined, decidedly wider than the latter but narrowed towards its base; the funicle joints successively increasing in width and slightly in length; the club is apparently solid. Mesonotum abundantly furnished with very fine light colored setae, a row of these near the hind margin much stronger and darker. Forewings uniformly ciliated except towards the base, the oblique hairless streak distinct.

General color a very pale yellow with the dorsum of a more pale orange tint, the abdomen pale with the hind margins of the two segments above the vibrissal plates brownish. Antennae dusky yellowish. Wings hyaline with the veins yellowish, the forewings with a very conspicuous smoky band extending in a somewhat triangular manner across the disk (in *A. fasciipennis* the band extends across disk in its full width); the tip of marginal vein and the stigma infuscated, forming a rather distinctive marking, and crossing the smoky band is a lighter transverse streak nearer the hind margin. Ovipositor not very much darker than the abdomen. Legs concolorous with the underpart of the body.

Length.—.76–.80 mm.

Described from two females, mounted on slides in balsam, one reared by the writer from *Pseudococcus aonidum* on Elephant Ear at Río Piedras, Porto Rico, May 25, 1925, and the other from *Pseudococcus citri*, Río Piedras, Porto Rico, May 26, 1925.

Holotype deposited in the U. S. National Museum (Cat. No. 29071) and the paratype retained in the private collection of the writer.

TAXONOMIC STUDIES OF THE LARVAE OF THE GENERA TENEBRIO AND NEATUS LE CONTE¹ (COLEOPTERA: TENEBRIONIDAE).

BY R. A. ST. GEORGE, *U. S. Bureau of Entomology.*

The present paper gives a generic characterization of the larvae of *Tenebrio* Le Conte and *Neatus* Le Conte; comments on the descriptions by previous authors of larvae representing different species of these two genera, and concludes with a specific key to these larvae.

GENERIC CHARACTERIZATION OF THE LARVAE OF TENEBRIO LE CONTE.

Mandibles of right and left sides differing in shape; both apically bifid (Fig. 2, a¹, a²) each with an additional tooth (t) between apex and molar part (m); tooth of right mandible (Fig. 2, t) prominent and placed near apex, that of left

¹Characterizations both of the family Tenebrionidae and the subfamily Tenebrioninae were given by the present writer in a previous paper. (No. 20, pages 2 and 3.) The numbers in the parentheses refer to literature cited in the bibliographic list.